MATERIAL SAFETY DATA SHEET
Welding Consumables and Related Products
Essentially Similar to U.S. Department of Labor Form OSHA-20

Section 1 - IDENTIFICATION

Manufacturer/Supplier Name: National-Standard Company	Telephone No.: (616) 683-8100
Address: 601 North 8th Street	Niles, Michigan
Trade Name: NS-101	Classification: ER70S-3

Product Type: Solid steel welding electrode for GMA welding.

Section 2 - HAZARDOUS* MATERIALS

IMPORTANT!
This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with (normal use of) this product are covered by Section 6.

*The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

TYPICAL CHEMICAL COMPOSITION

ELEMENT	CAS NUMBER	% BY WEIGHT	TLV	ELEMENT	CAS NUMBER	% BY WEIGHT	TLV
Carbon		.096		Chromium			
Manganese	7439-96-5	1.11	5 Mg/M^3	Nickel			
Silicon	7440-21-3	.58	10 Mg/M^3	Molybdenum			
Phosphorus	7723-14-0	.018	0.1 Mg/M^3	Columbium			
Sulfur		.017		Tantalum			
Copper	7440-50-8	.05	1 Mg/M^3	Titanium			
Iron		Balance					

Section 3 - PHYSICAL DATA

Boiling Point (°F.)	N/A	Specific Gravity (H_2O=1)	7.86
Vapor Pressure (mm Hg.)	N/A	Percent, Volatile by Volume (%)	N/A
Vapor Density (Air=1)	N/A	Evaporation Rate (_____=1)	N/A
Solubility in Water			

Appearance and Odor: Steel Gray - No Odor

Section 4 - FIRE AND EXPLOSION HAZARD DATA

(Nonflammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1, Safety in Welding and Cutting, published by the American Welding Society, P.O. Box 351040, Miami, FL 33135, for fire prevention and protection information during the use of welding and allied procedures.

Section 5 - HEALTH HAZARD DATA

Threshold Limit Value:
The ACGIH recommended general limit for Welding Fume NOC (Not Otherwise Classified) is 5/mg/m^3. ACGIH-1980 (or latest date) preface states "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations." See Section 6 for specific fume constituents which may modify this TLV.

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Section 5 - HEALTH HAZARD DATA (Continued)

Effects of Overexposure

Electric arc welding may create one or more of the following health hazards. FUMES AND GASES can be dangerous to your health.
Short term overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.
ARC RAYS can injure eyes and burn skin.
ELECTRIC SHOCK can kill.
See Sections 6 and 8.

Emergency and First Aid Procedures

Call for medical aid. Employ first aid techniques recommended by American Red Cross.

Section 6 - REACTIVITY DATA

Hazardous Composition Products

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and type from the ingredients listed in Section 2. Decomposition products of normal operation include those originating from volatilization, reaction, or oxidation of the materials shown in Section 2, plus those from the base metal coating, etc., as noted above.

Reasonably expected fume constituents of this product would include:

Gaseous reaction products such as carbon monoxide and carbon dioxide.
Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

Section 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

Section 8 and 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, DC 20402, for more detail on many of the following.

Ventilation

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the welder's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory Protection

Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust ventilation does not keep exposure below TLV.

Eye Protection

Wear helmet or use face shield with filter lens shade number "10" or darker.
Provide protective screens and flash goggles, if necessary, to shield others.

Protective Clothing

Wear hand, head and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum, this includes welder's gloves and a protective face shield, and may include protectors, aprons, hats, shoulder protection, as well as dark, substantial clothing.
Couch live electrical parts and to insulate himself from work and ground.

Date Prepared _____